# CAD-0215 Series
# Communication Appliance

## User's Manual

Revision: 1.1

American Portwell Technology Inc.

# Table of Contents

**Chapter 1 Introduction ..... 2**
1.1 About This Manual ..... 2
1.2 Manual Organization ..... 2
1.3 Technical Support Information ..... 2
1.4 Board Layout ..... 3
1.5 System Block Diagram ..... 4
1.6 Product Specification ..... 5
1.7 LED Signaling Standard ..... 6
**Chapter 2 Getting Started ..... 7**
2.1 Included Hardware ..... 7
2.2 Before You Begin ..... 7
2.3 Hardware Configuration Setting ..... 9
2.4 The Chassis ..... 12
2.5 Open the Chassis ..... 13
2.6 Remove and Install DIMM ..... 14
2.7 Remove and Install CF card ..... 16
2.8 Use a Client Computer ..... 17
**Chapter 3 BIOS Setting ..... 19**

# Chapter 1 Introduction

## 1.1 About This Manual

This manual contains all required information for setting up and using the CAD-0215 series.

CAD-0215 provides the essential platform for delivering optimal performance and functionality in the entry communications appliance market segment. This manual should familiarize you with CAD-0215 operations and functions. CAD-0215 series provide up to 4 on-board Ethernet ports to serve communication applications like Firewall, requiring 4 Ethernet ports to connect external network (internet), demilitarized zone and internal network.

CAD-0215 series overview:

- ✧ Supports AMD eOntario Family, T24L, 1.0GHz, Single Core.
- ✧ Memory: One DDR3 DIMM slot and up to 8G
- ✧ Four Gigabit Ethernet interfaces
- ✧ Independent management console(RS232)
- ✧ One CF slot

## 1.2 Manual Organization

This manual describes how to configure your CAD-0215 system to meet various operating requirements. It is divided into three chapters, with each chapter addressing the basic concept and operation of this system.

Chapter 1: Introduction. This section describes how this document is organized. It includes brief guidelines and overview to help find necessary information.

Chapter 2: Hardware Configuration Setting and Installation. This chapter demonstrated the hardware assembly procedure, including detailed information. It shows the definitions and locations of Jumpers and Connectors that can be used to configure the system.

Chapter 3: Operation Information. This section provides illustrations and information on the system architecture and how to optimize its performance.

## 1.3 Technical Support Information

Users may find helpful tips or related information on Portwell's web site: http://www.portwell.com A direct contact to Portwell's technical person is also available. For further support, users may also contact Portwell in Fremont CA or local distributors.

**Phone Number:** +1-510-403-3399

## 1.4 Board Layout

**Figure 1-1 Board Layout of CAD-0215 M/B**

## 1.5 System Block Diagram

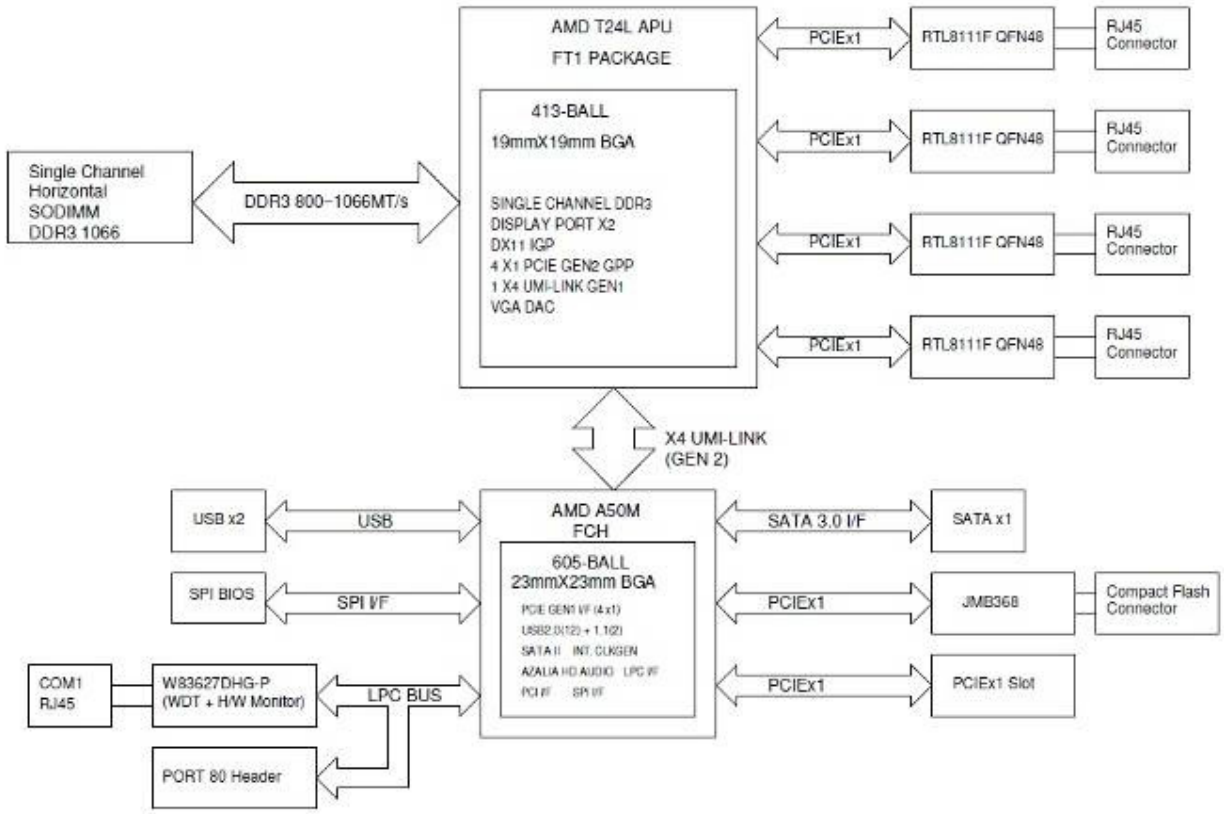



**Figure 1-2 CAD-0215 Basic Block Diagram**

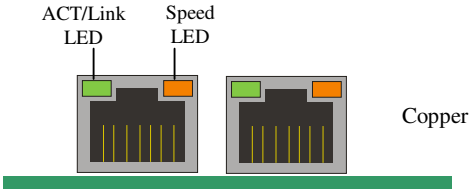
## 1.6 Product Specification

| # | Feature | Detailed Description |
|---|---|---|
| 1 | CPU | • AMD T24L, 1.0GHz,Single Core. |
| 2 | CPU Board | • CAD-0215 with AMD T24L<br>• Board size: 145 mm x 100 mm |
| 3 | System Memory | • 1 DIMM socket<br>• Support DDR3 1066.<br>• up to 8GB |
| 4 | Ethernet | • Four PCI-Ex1 from S/B (T24L) directly connect to PCI-E Ethernet controller<br>• Max. four PCI-E GbE ports based on Realtak RTL8111F-CG, 4 Ports |
| 5 | Storage Device | • 1 x CF slot |
| 6 | PSU | • 40W, 12V power adapter |
| 7 | Front Panel | • LED:<br>– System LED: Power and Data access.<br>– Ethernet LED |
| 8 | Rear Panel | • Reset to Default button<br>• AC power inlet<br>• Ethernet interfaces: Four RJ45 Ethernet connectors.<br>• RS232 interface: RS232 port with RJ45 connector for system console, tab-down, no LED<br>• USB interface: dual-USB connectors |
| 9 | Dimension | ◆ 106x155x33mm |
| 10 | Environmental requirements | • Storage temp.: -20℃ to 75℃<br>• Operating temp.: 0℃ to 40℃<br>• Humidity: 10 to 90% RH non-condensing |

## 1.7 LED Signaling Standard

### 1. Ethernet LED

| Label | Color | *Indication* | Status |
|---|---|---|---|
| ACT/LINK | **Green Or Others** | ***On*** | 1. The Ethernet port is receiving power.<br>2. Good linkage between the Ethernet port and its supporting hub. |
| | | **Off** | 1. The adapter and switch are not receiving power.<br>2. No connection between both ends of network cable.<br>3. The drivers of Ethernet have not been loaded or does not function correctly. |
| | **Green Or Others** | **Flashing** | The adapter is sending or receiving network data. The frequency of the flashes varies with the amount of network traffic. |
| SPEED | **Yellow** | **On** | ACT/LNK LED must on then this LED show the operating at 1000 Mbps. If ACT/LINK is off and this function will be disable. |
| | **Green** | **On** | ACT/LNK LED must on then this LED show the operating at 100 Mbps. If ACT/LINK is off and this function will be disable. |
| | | **Off** | ACT/LNK LED must on then this LED show the operating at 10 Mbps. If ACT/LINK is off and this function will be disable. |




Copper Ethernet Interface

# Chapter 2 Getting Started

This section describes how the hardware installation and system settings should be done.

## 2.1 Included Hardware

The following hardware is included in package:

- CAD-0215 Communication Appliance System Board
- One null serial port cable
- AC-DC Adapter
- Chassis foot pad

## 2.2 Before You Begin

There are four foot pads should be installed.

To prevent damage to any system board, it is important to handle it with care. The following measures are generally sufficient to protect your equipment from static electricity discharge:

When handling the board, use a grounded wrist strap designed for static discharge elimination and touches a grounded metal object before removing the board from the antistatic bag. Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.

When handling processor chips or memory modules, avoid touching their pins or gold edge fingers. Restore the communications appliance system board and peripherals back into the antistatic bag when they are not in use or not installed in the chassis.

Some circuitry on the system board can continue operating even though the power is switched off. Under no circumstances should the Lithium battery cell used to power the real-time clock be allowed to be shorted. The battery cell may heat up under these conditions and present a burn hazard.

## WARNING!

1. **"CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS"**
2. **This guide is for technically qualified personnel who have experience installing and configuring system boards. Disconnect the system board power supply from its power source before you connect/disconnect cables or install/remove any system board components. Failure to do this can result in personnel injury or equipment damage.**
3. **Avoid short-circuiting the lithium battery; this can cause it to superheat and cause burns if touched.**
4. **Do not operate the processor without a thermal solution. Damage to the processor can occur in seconds.**
5. **Do not block air vents. Minimum 1/2-inch clearance required.**

## 2.3 Hardware Configuration Setting

### 2.3.1 CAD-0215 System

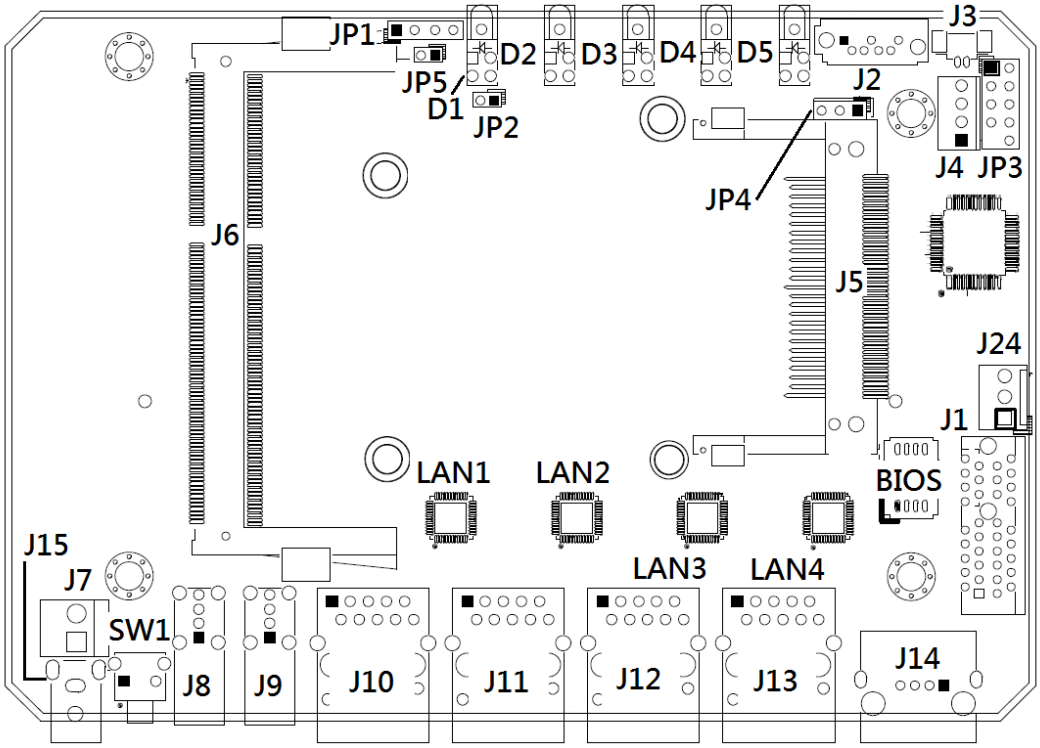
### 2.3.2 CAD-0215 System Board Jumper

In general, jumpers on CAD-0215 system board are used to select options for certain features. Some of the jumpers are configurable for system enhancement. The others are for testing purpose only and should not be altered. To select any option, cover the jumper cap over (Short) or remove (NC) it from the jumper pins according to the following instructions. Here NC stands for “Not Connected”.

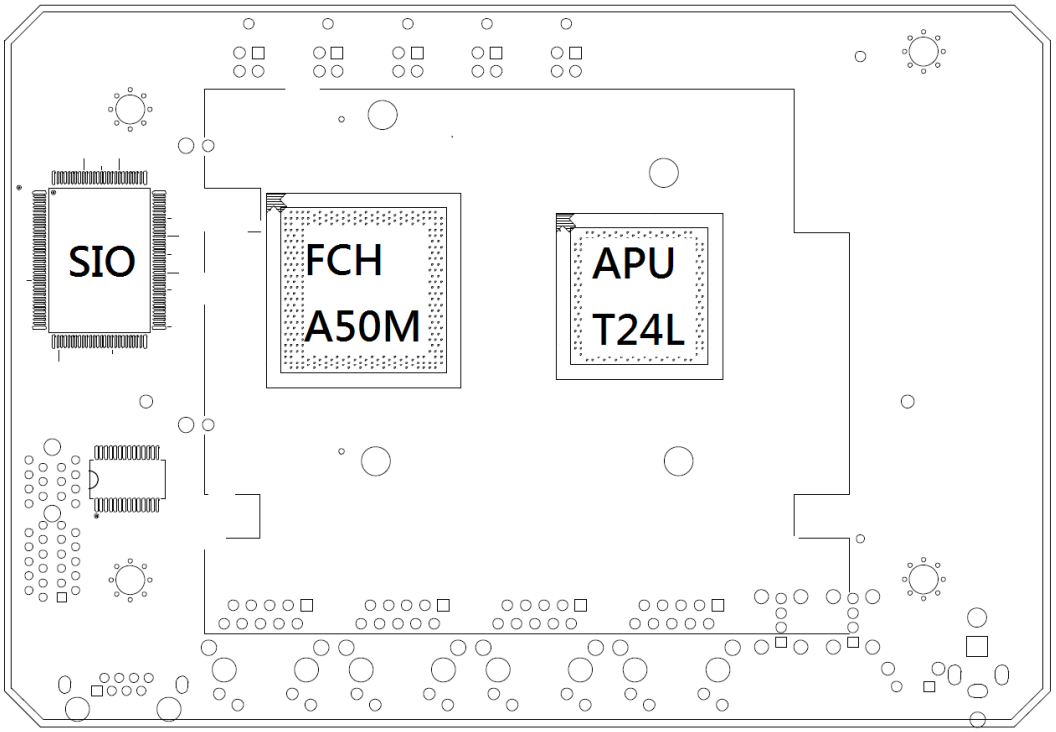
## Location of Jumpers

### CAPB-0215ND Jumper Setting: (Default Setting:"★")

### Top Side




### Bottom Side



| Connector | Function | Remark |
|---|---|---|
| JP1 | Power On/Reset Button | 1-2:Reset<br>3-4:PWRBTN |
| JP2 | PIC Auto Power BTN Enable Jumper | |
| JP3 | LPC Port 80 Debug Header | POST Code for debug |
| JP4 | Clear CMOS Jumper | *1-2:Normal<br>2-3:CLR CMOS |
| JP5 | WDT Reserved GPIO | Reserved for future use. |
| J1 | PCI Express x1 slot | Debug Use for VGA |
| J2 | SATA 3.0 Connector | |
| J3 | Cable Type CMOS Battery | |
| J4 | SATA HDD Power Connector | |
| J5 | Compact Flash Connector | |
| J6 | DDR3 SODIMM Connector | |
| J7 | DC Power External Switch Header | |
| J8 | USB 2.0 Connector 1 | |
| J9 | USB 2.0 Connector 2 | |
| J10 | LAN 1 | |
| J11 | LAN 2 | |
| J12 | LAN 3 | |
| J13 | LAN 4 | |
| J14 | Console Redirection RJ45 Connector | |
| J15 | DC Power Jack | 12V Input Only. |
| J24 | 3 Pin FAN Header | Not Smart FAN |
| SW1 | Reset to Default Button | |
| D1 | SATA or CF / Power LED | RED/Green |
| D2 | LAN 1 Front LED | |
| D3 | LAN 2 Front LED | |
| D4 | LAN 3 Front LED | |
| D5 | LAN 4 Front LED | |

## 2.4 The Chassis

The system is integrated in a 1U desktop chassis (**Fig. 2-1, Fig. 2-2**). On the front panel you will find a Power / HDD / Ethernet LED.

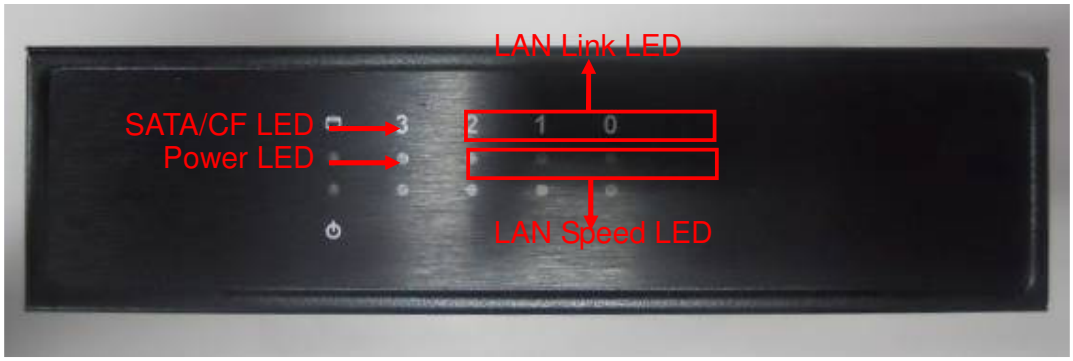



**Fig. 2-1** Front view of the chassis

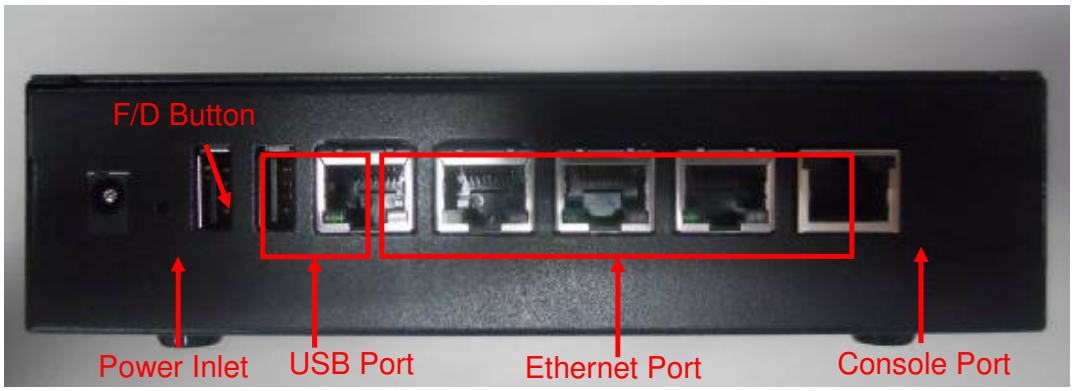



**Fig. 2-2** Rear view of the chassis

## 2.5 Open the Chassis

There are two covers of the chassis, top (chipsets) and bottom side (I/O device).
If you want to install or change I/O devices, please open bottom side cover of chassis.

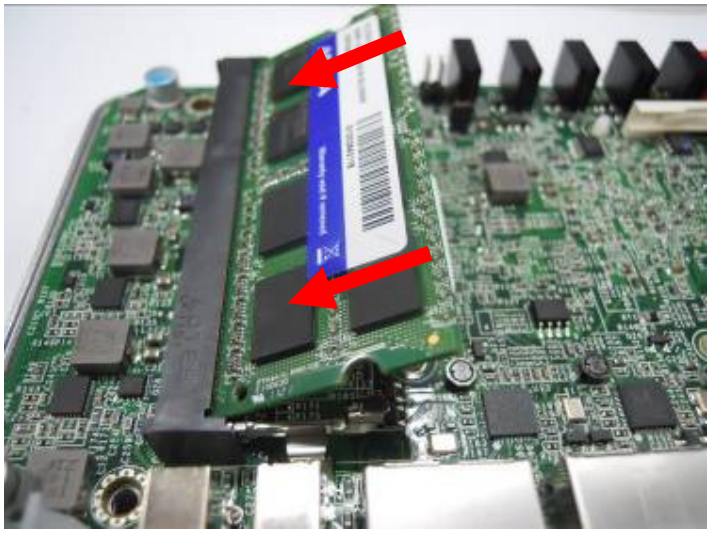
Remove the foot pad; loosen the 3 screws of bottom side of the chassis; then to remove the bottom side cover

## 2.6 Remove and Install DIMM

**Follow these steps to upgrade RAM module:**

Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

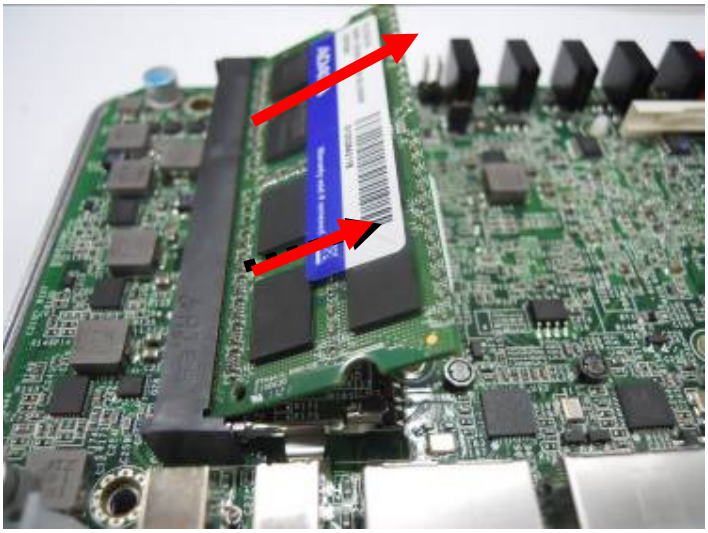
1. Obliquity inserts the DIMM into the socket and depresses DIMM until the retaining clips back in place



A DDR DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.

**Follow these steps to remove a DIMM:**

1. Pull the retaining clips of DIMM socket simultaneously to unlock the DIMM



2. Remove the DIMM from the socket

## 2.7 Remove and Install CF card

Insert the Compact Flash Card (Fig. 2-3) into the CF interface (Fig. 2-4).

Fig. 2-3 Compact Flash Card

Fig. 2-4Insert Compact Flash Card into the CF interface

The completed installation of Compact Flash Card is shown as Fig. 2-4

Fig. 2-4Completion of Compact Flash Card connection

## 2.8 Use a Client Computer

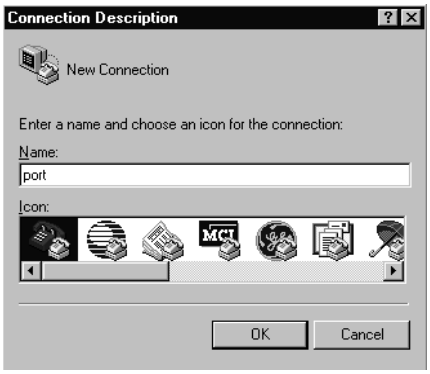
### ***Connection Using Hyper Terminal***

If users use a headless CAD-0215 system, which has no mouse/keyboard, the console may be used to communicate with CAD-0215.

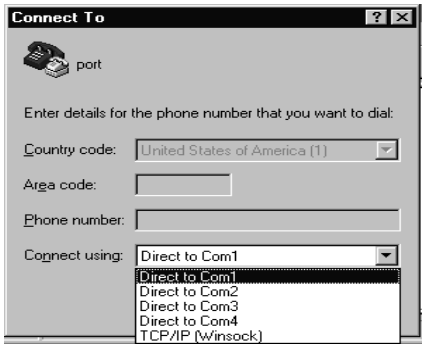
To access CAD-0215 via the console, Hyper Terminal is one of many choices. Follow the steps below for the setup:

***Note**: Terminal software may need to update for correct console output.*

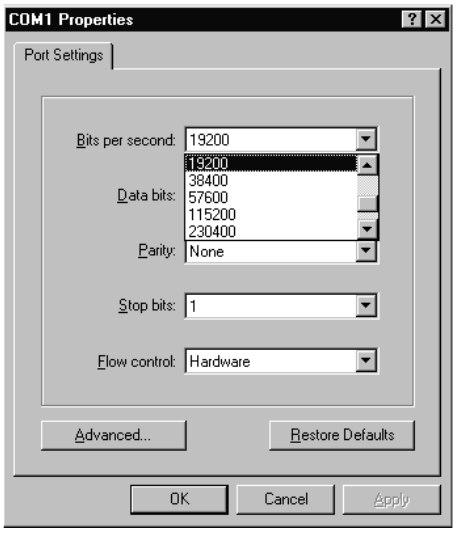
1. Execute HyperTerminal under C:\Program Files\Accessories\HyperTerminal
2. Enter a name to create new dial



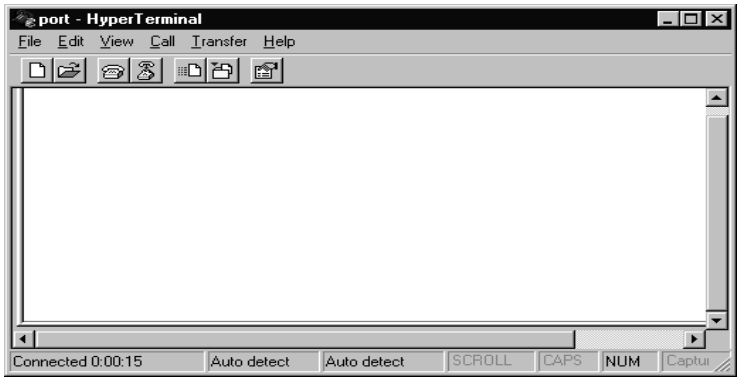

3. For the connection settings, make it Direct to Com1.



4. Please make the port settings to Baud rate 19200 Parity None, Data bits 8, Stop bits 1




5. Turn on the power of CAD-0215 system, after following screen was shown:

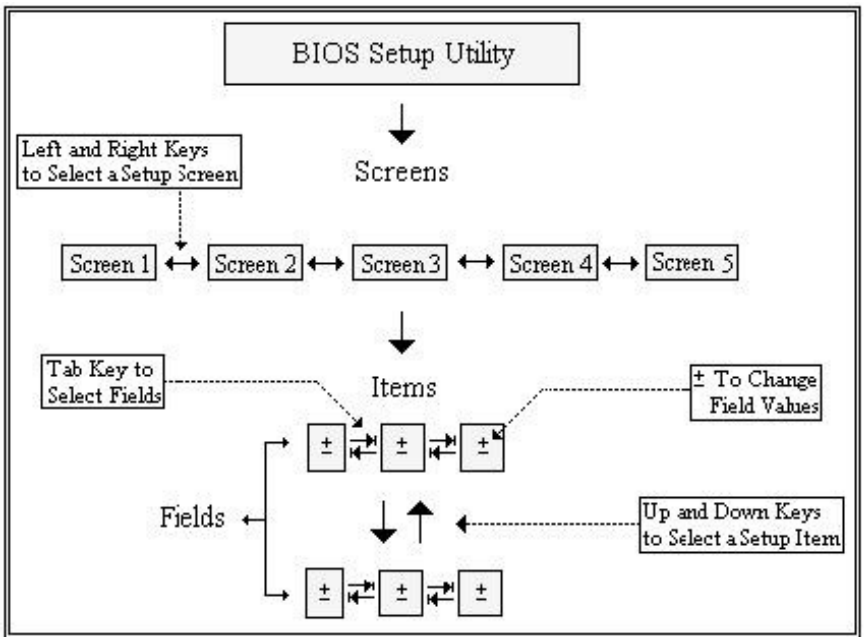



This is the end of this section. If the terminal did not port correctly, please check the previous steps.

# Chapter 3 BIOS Setting

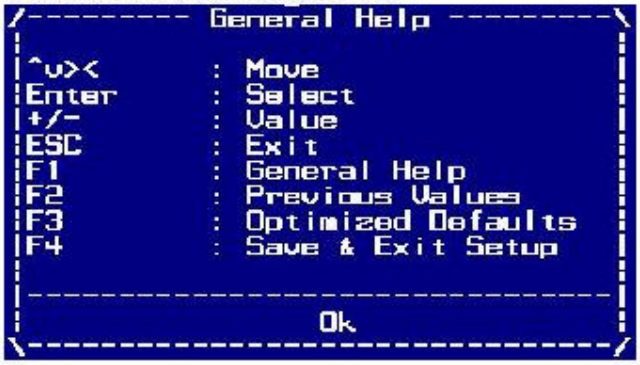
Power on the system, press the <Del> to run BIOS setup (remote mode is <Tab>). After you press the <Delete> key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Chipset and Power menus.

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F4> <Enter>, <ESC>, <Arrow> keys, and so on.



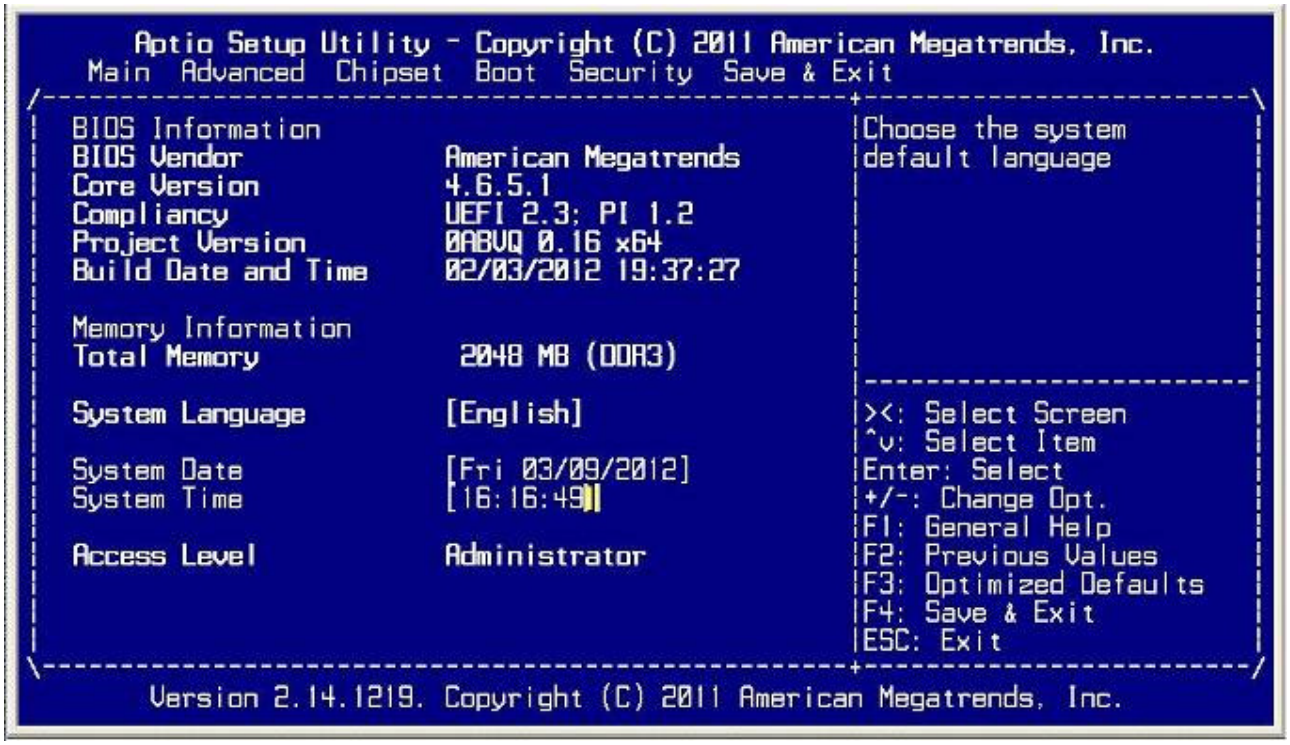

**Control Keys**

| Key | Function |
|---|---|
| **↑↓Up /Down** | The Up and Down <Arrow> keys allow you to select a setup item or sub-screen. |
| **→ ← Left/Right** | The Left and Right <Arrow> keys allow you to select a setup screen. For example: Main screen, Advanced screen, Chipset screen, and so on. |
| **+ - Plus/ Minus** | The Plus and Minus <Arrow> keys allow you to change the field value of a particular setup item. For example: Date and Time. |

| Hot Key | Description |
|---|---|
| F1 | The <F1> key allows you to display the *General Help screen*.<br><br>Press the <F1> key to open the *General Help screen*.<br>  |
| F4 | The <F4> key allows you to save any changes you have made and exit Setup. Press the <F4> key to save your changes. The following screen will appear:<br> <br>Press the <Enter> key to save the configuration and exit. You can also use the <Arrow> key to select *Cancel* and then press the <Enter> key to abort this function and return to the previous screen. |
| ESC | The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes. The following screen will appear:<br> <br>Press the <Enter> key to discard changes and exit. You can also use the <Arrow> key to select *Cancel* and then press the <Enter> key to abort this function and return to the previous screen. |
| Enter | The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens. |

## *Main Menu*

When you first enter the Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section.
In console mode:


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
BIOS Information
BIOS Vendor American Megatrends
Core Version 4.6.5.1
Compliancy UEFI 2.3; PI 1.2
Project Version 0ABVQ 0.16 x64
Build Date and Time 02/03/2012 19:37:27
Memory Information
Total Memory 2048 MB (DDR3)
System Language [English]
System Date [Fri 03/09/2012]
System Time [16:16:49]
Access Level Administrator
Choose the system default language
><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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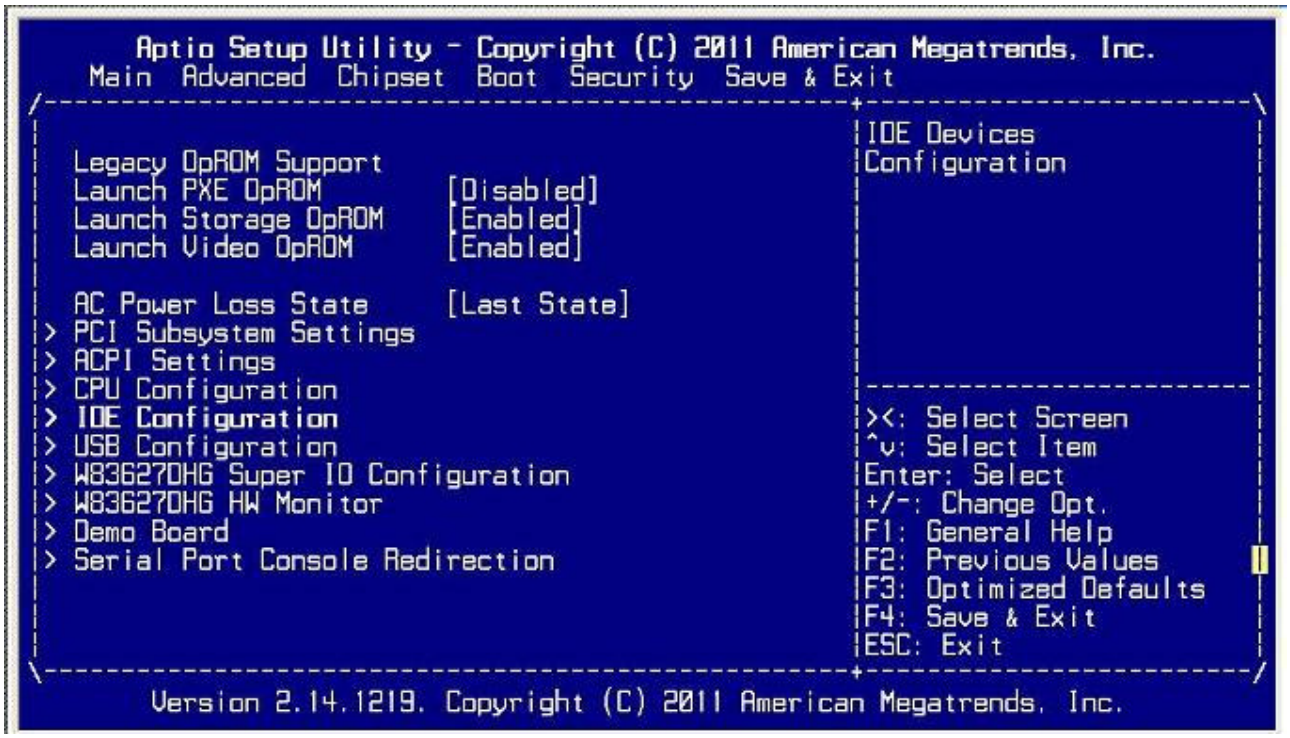
**System Date / Time**
Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

### ➢ Advanced BIOS Setup

Select the Advanced tab from the setup screen to enter the Advanced BIOS Setup screen. You can select any of the items in the left frame of the screen, such as SuperIO Configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screen is shown below. The sub menus are described on the following pages.


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Legacy OpROM Support
Launch PXE OpROM [Disabled]
Launch Storage OpROM [Enabled]
Launch Video OpROM [Enabled]
AC Power Loss State [Last State]
> PCI Subsystem Settings
> ACPI Settings
> CPU Configuration
> IDE Configuration
> USB Configuration
> W83627DHG Super IO Configuration
> W83627DHG HW Monitor
> Demo Board
> Serial Port Console Redirection
IDE Devices Configuration
><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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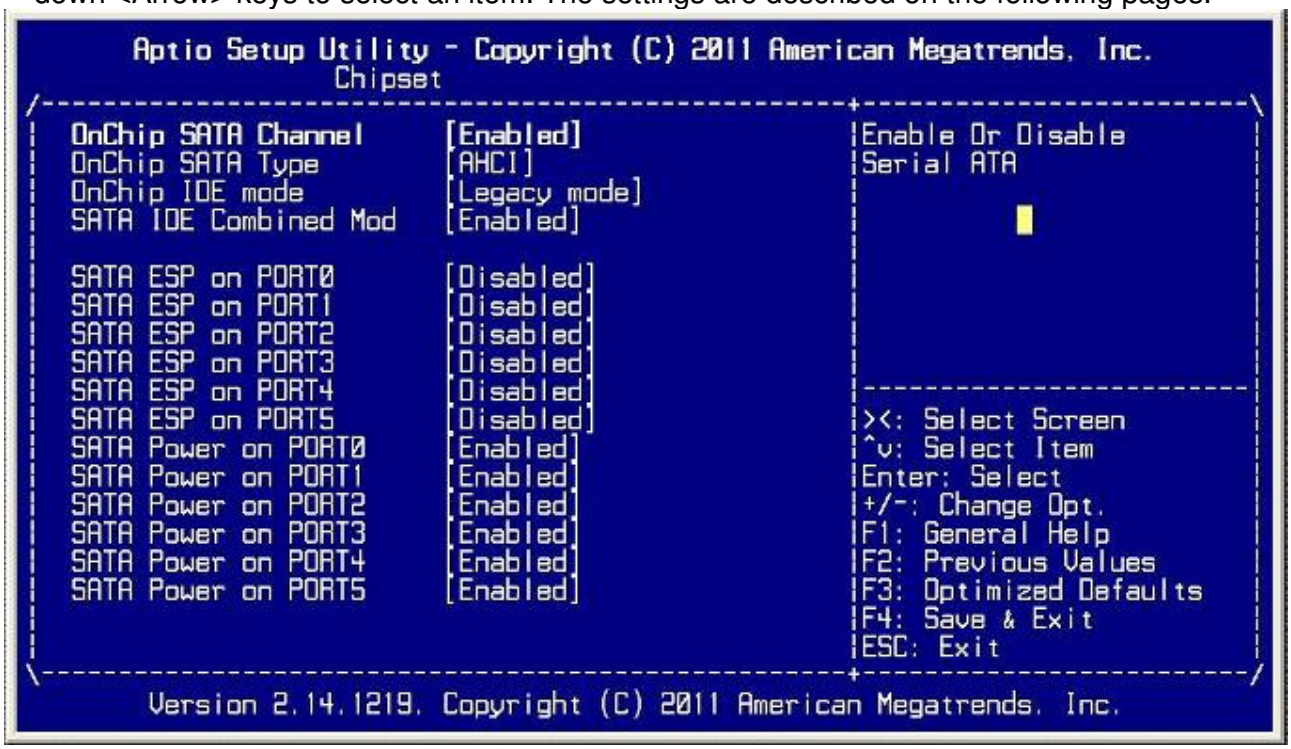
➢ **IDE Configuration Setup**

From the IDE Configuration screen, press <Enter> to access the sub menu. Use the up and down <Arrow> keys to select an item. The settings are described on the following pages.


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Chipset
OnChip SATA Channel [Enabled]
OnChip SATA Type [AHCI]
OnChip IDE mode [Legacy mode]
SATA IDE Combined Mod [Enabled]
SATA ESP on PORT0 [Disabled]
SATA ESP on PORT1 [Disabled]
SATA ESP on PORT2 [Disabled]
SATA ESP on PORT3 [Disabled]
SATA ESP on PORT4 [Disabled]
SATA ESP on PORT5 [Disabled]
SATA Power on PORT0 [Enabled]
SATA Power on PORT1 [Enabled]
SATA Power on PORT2 [Enabled]
SATA Power on PORT3 [Enabled]
SATA Power on PORT4 [Enabled]
SATA Power on PORT5 [Enabled]
Enable Or Disable Serial ATA
><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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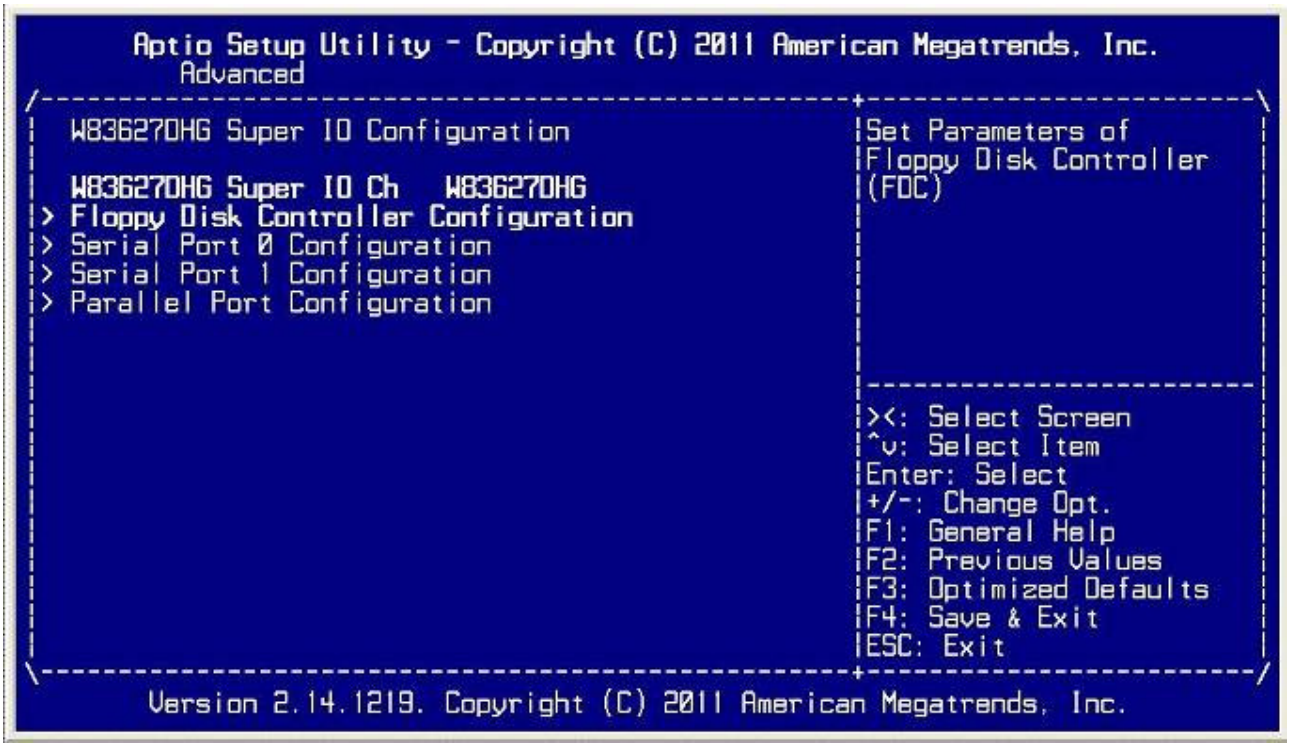
➢ **Super IO Configuration**

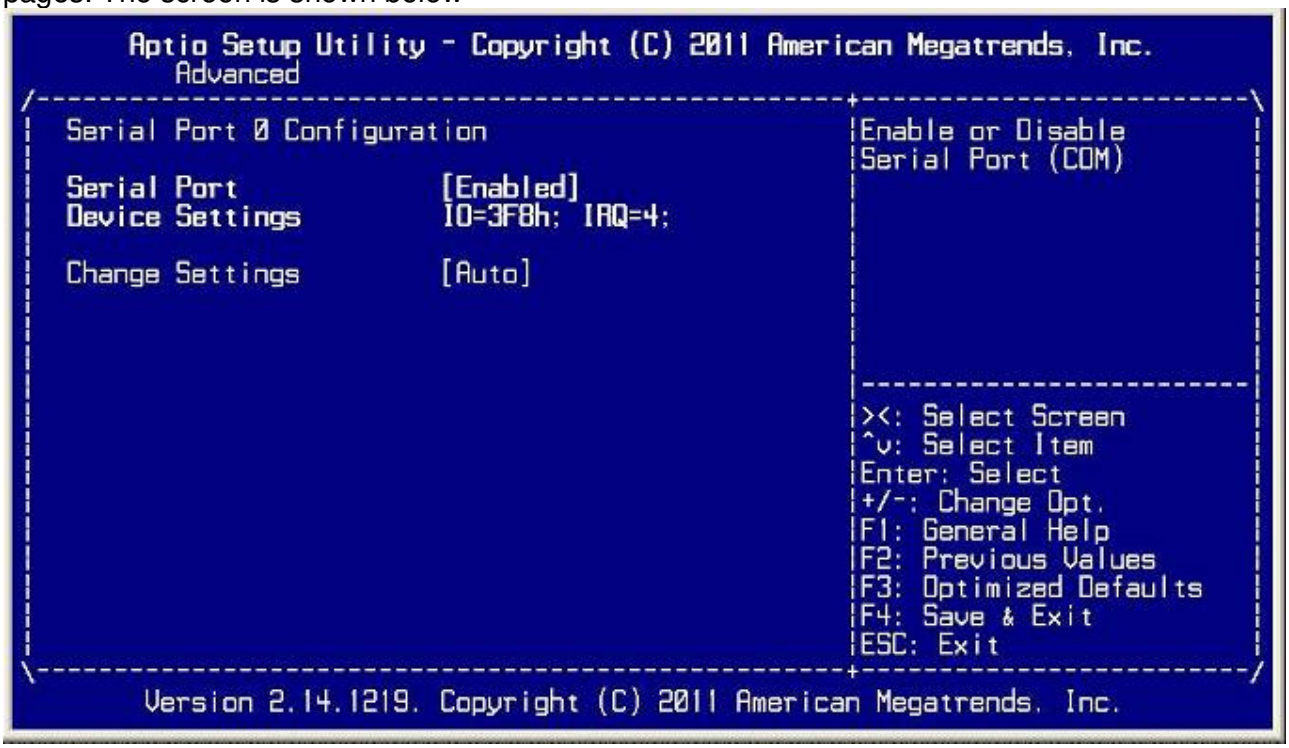
You can use this screen to select options for the Super I/O settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
Advanced
W83627DHG Super IO Configuration
W83627DHG Super IO Ch W83627DHG
> Floppy Disk Controller Configuration
> Serial Port 0 Configuration
> Serial Port 1 Configuration
> Parallel Port Configuration
Set Parameters of Floppy Disk Controller (FDC)
><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

## ➢ REMOTE ACCESS CONFIGURATION

**Remote Access Configuration**

You can use this screen to select options for the Remote Access Configuration. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below




**Remote Access**

You can disable or enable the BIOS remote access feature here.

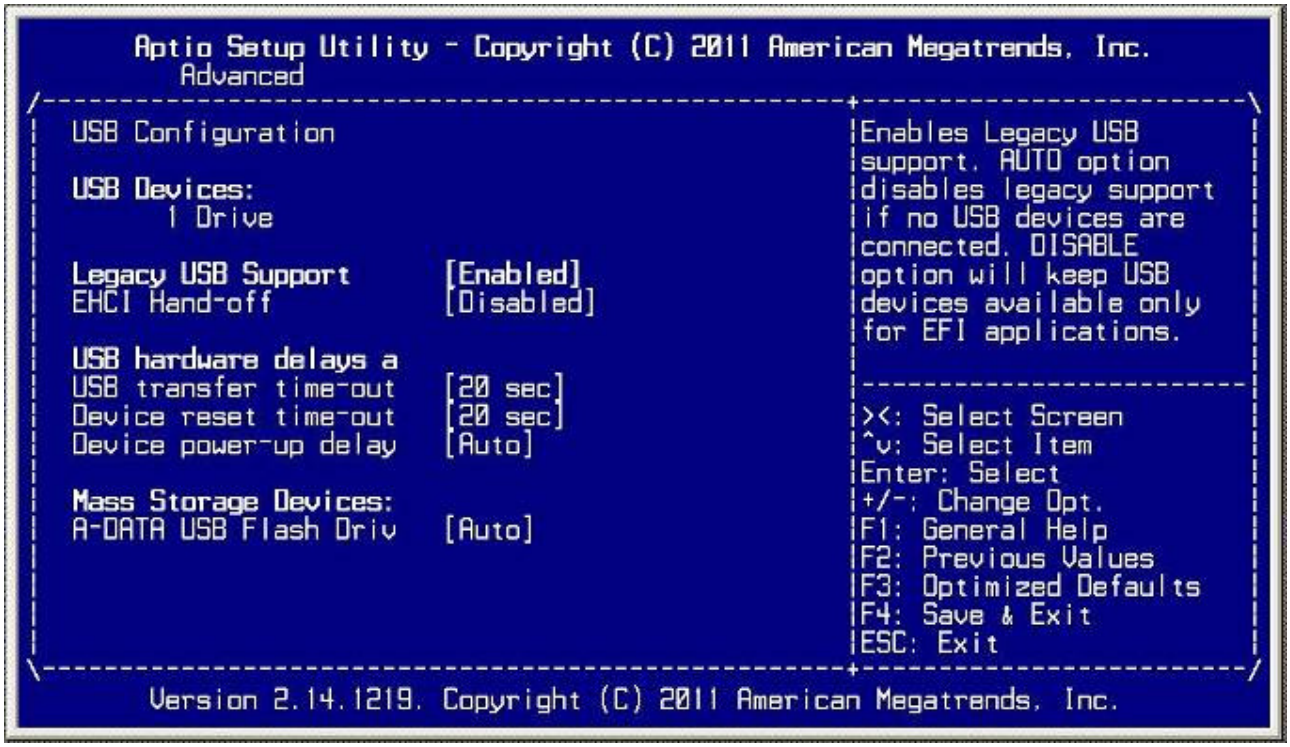
**SerialPort Number**

Select the serial port you want to use for console redirection. You can set the value for this option to either COM1.

**SerialPort Mode**
Select the baud rate you want the serial port to use for console redirection.

## ➢ USB Configuration

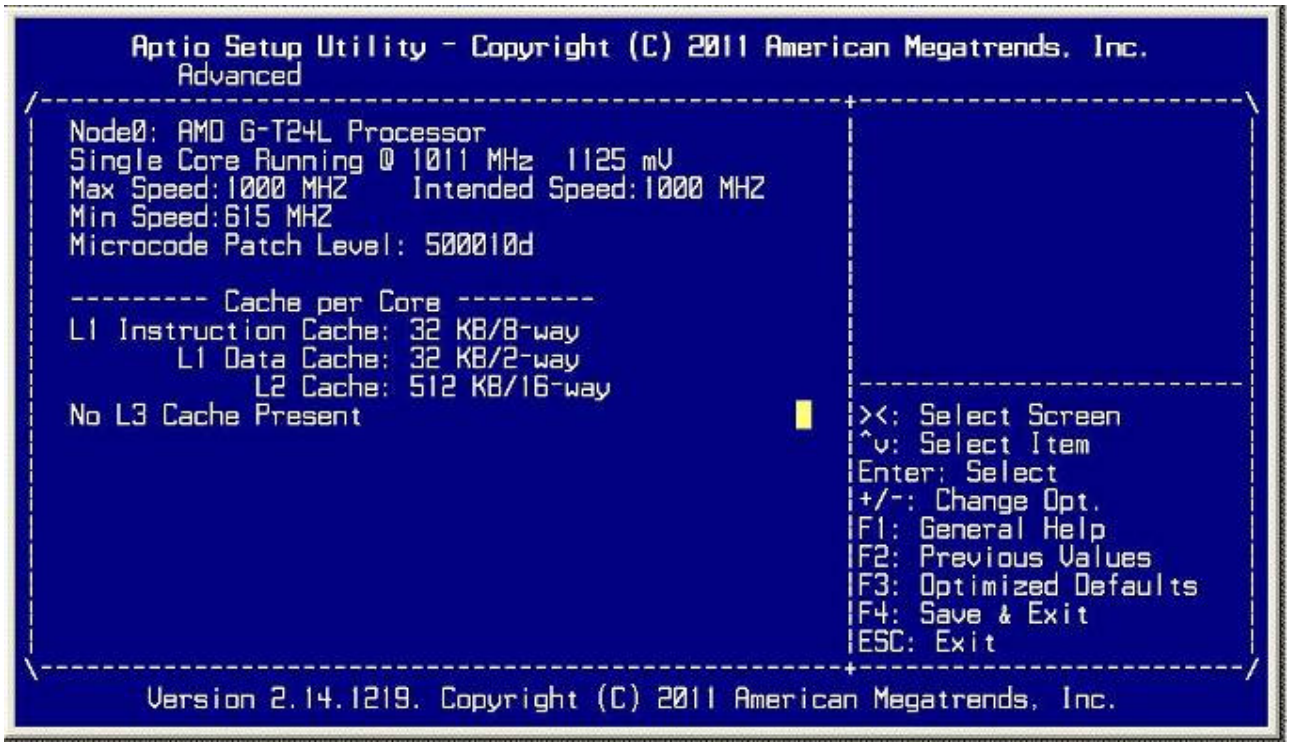
You can use this screen to select options for the USB Configuration. Use the up and down<Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
Advanced
USB Configuration
USB Devices:
1 Drive
Legacy USB Support [Enabled]
EHCI Hand-off [Disabled]
USB hardware delays a
USB transfer time-out [20 sec]
Device reset time-out [20 sec]
Device power-up delay [Auto]
Mass Storage Devices:
A-DATA USB Flash Driv [Auto]
Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

**Legacy USB Support**
Legacy USB Support refers to the USB mouse and USB keyboard support. Normally if this option is not enabled, any attached USB mouse or USB keyboard will not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB drivers loaded on the system. Set this value to enable or disable the Legacy USB Support. The Optimal and Fail-Safe default setting is Disabled.

## ➢ CPU Configuration (Node 0 Information)

You can use this screen to select options for the CPU Configuration. Use the up and down<Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option.


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
Node0: AMD G-T24L Processor
Single Core Running @ 1011 MHz 1125 mV
Max Speed:1000 MHZ Intended Speed:1000 MHZ
Min Speed:615 MHZ
Microcode Patch Level: 500010d
--------- Cache per Core ---------
L1 Instruction Cache: 32 KB/8-way
L1 Data Cache: 32 KB/2-way
L2 Cache: 512 KB/16-way
No L3 Cache Present
><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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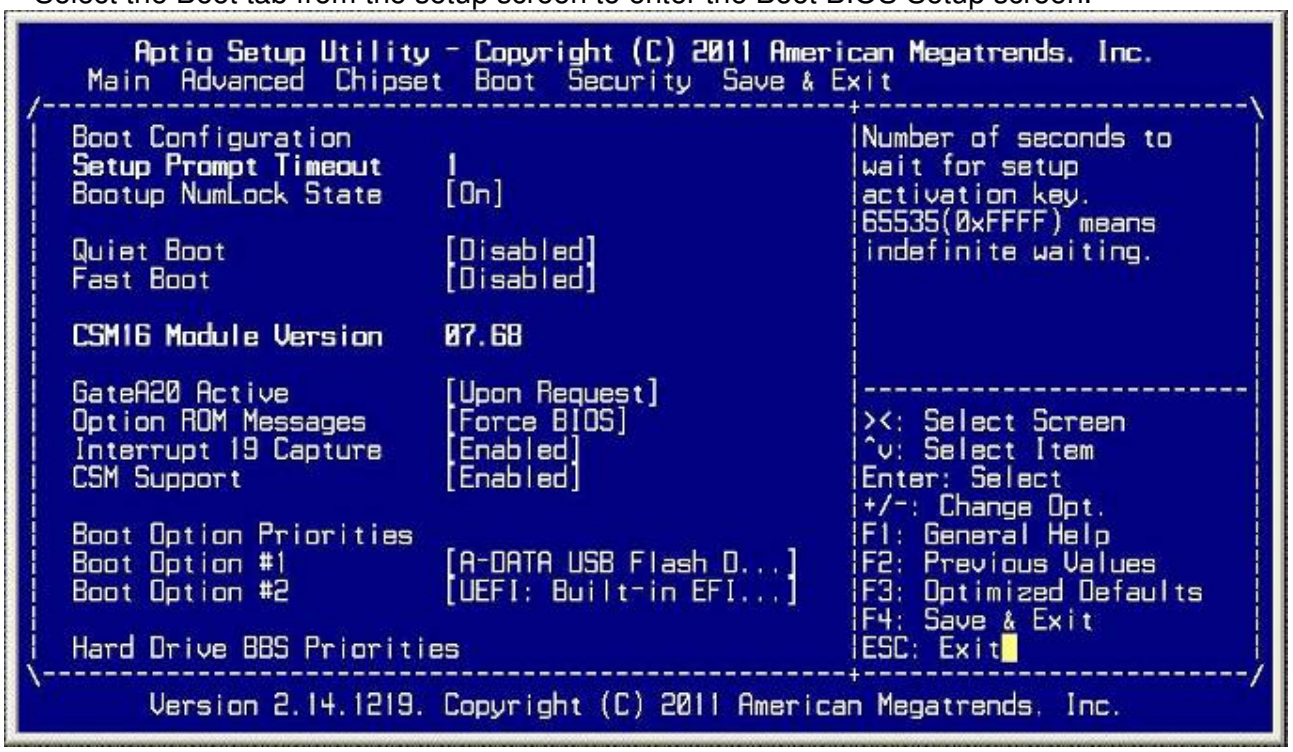
**Note:** The CPU Configuration setup screen varies depending on the installed processor.

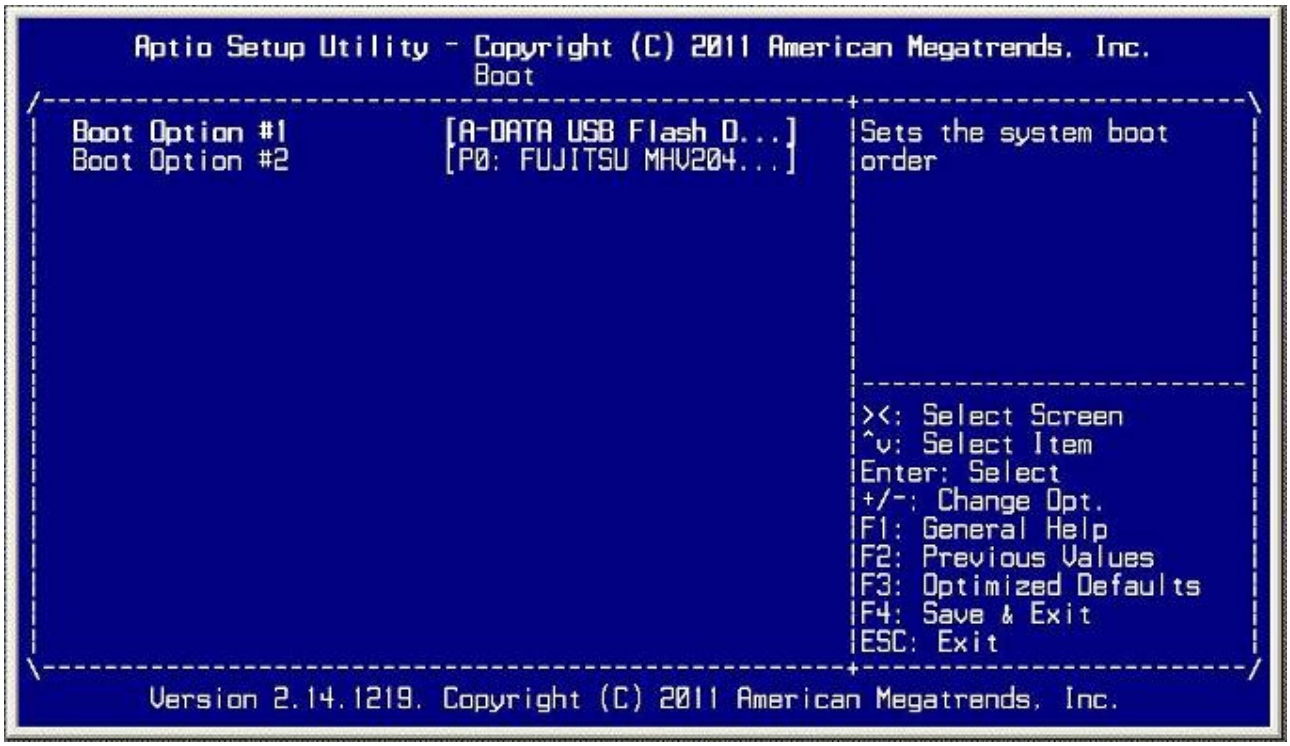
### ➢ Boot Settings

Select the Boot tab from the setup screen to enter the Boot BIOS Setup screen.


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Boot Configuration
Setup Prompt Timeout 1
Bootup NumLock State [On]
Quiet Boot [Disabled]
Fast Boot [Disabled]
CSM16 Module Version 07.68
GateA20 Active [Upon Request]
Option ROM Messages [Force BIOS]
Interrupt 19 Capture [Enabled]
CSM Support [Enabled]
Boot Option Priorities
Boot Option #1 [A-DATA USB Flash D...]
Boot Option #2 [UEFI: Built-in EFI...]
Hard Drive BBS Priorities
Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

### ➢ BOOT DEVICE PRIORITY

Use this screen to specify the order in which the system checks for the device to boot from. To access this screen, select Boot Device Priority on the Boot Setup screen and press<Enter>. The following screen displays:


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Boot
Boot Option #1 [A-DATA USB Flash D...]
Boot Option #2 [P0: FUJITSU MHV204...]
Sets the system boot order
><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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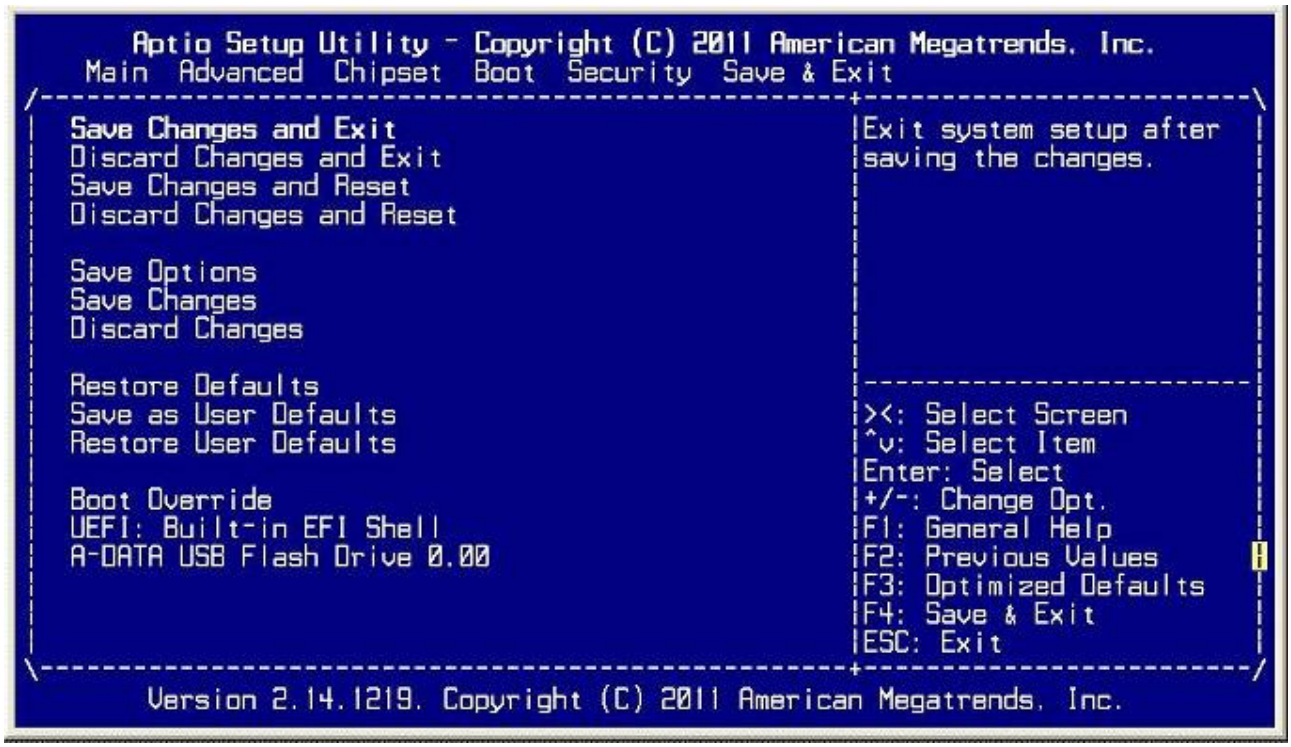
## ➢ Exit Menu

Select the Exit tab from the setup screen to enter the Exit BIOS Setup screen. You can display an Exit BIOS Setup option by highlighting it using the <Arrow> keys. All Exit BIOS Setup options are described in this section. The Exit BIOS Setup screen is shown below.




**Saving Changes and Exit**

When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select Exit Saving Changes from the Exit menu and press <Enter>.

**Discard Changes and Exit**
Select this option to quit Setup without making any permanent changes to the system configuration. Select Exit Discarding Changes from the Exit menu and press <Enter>.

**Saving Changes and Exit**
Reset the system after saving the changes.

**Discard Changes and Reset**
Reset system setup without saving any changes.

**Save Changes**
Save changes done so far to any of the setup options.

**Discard Changes**
Discard Changes done so far to any of the setup options.

**Restore Defaults**
Restore/Load Default values for all the setup options.

**Save as User Defaults**
Save the changes done so far as User Defaults.

**Restore User Defaults**
Restore the User Defaults to all the setup options.